National Audit Office

REPORT BY THE COMPTROLLER AND AUDITOR GENERAL

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## Vehicle and Operator Services Agency

# Enforcement of regulations on commercial vehicles

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National Audit Office

## Vehicle and Operator Services Agency

# Enforcement of regulations on commercial vehicles

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Amyas Morse
Comptroller and
Auditor General

National Audit Office

18 December 2009

In this Report, we examine whether the Agency's HGV and PSV enforcement activities at the roadside and at operators' premises are efficient and effective. We examine specifically whether it is inspecting the right operators, makes best use of its resources and contributes to improving compliance and roadworthiness.



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This report can be found on the National Audit Office website at www.nao.org.uk/commercialvehicles2010

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# Summary

## Background

**1** Commercial vehicles (Heavy Goods Vehicles (HGVs) and Public Service Vehicles (PSVs)) must comply with a wide variety of roadworthiness and traffic regulations covering physical maintenance, weight limits and drivers' hours. Collectively, commercial vehicles make up nearly seven per cent of traffic on Great Britain's roads. The number of commercial vehicles involved in road accidents is decreasing, but 17,415 were involved in road traffic accidents in 2008 (5.6 per cent of all vehicles involved in accidents). Nine per cent of vehicles involved in fatal accidents were HGVs.

**2** The Vehicle and Operator Services Agency (the Agency), a trading fund of the Department for Transport (the Department), is responsible for ensuring compliance of commercial fleets with the relevant regulations in Great Britain. The Agency does this by conducting annual statutory tests and inspecting vehicles at the roadside to check their compliance with mechanical and traffic (loading and drivers' hours) regulations; and inspections at operators' premises to check compliance across their fleet and vehicle maintenance management systems. The Agency spent £36.6 million on enforcement of commercial vehicle regulations in 2008-09. The Department for Transport agrees the Agency's objectives, targets and budget each year and monitors the Agency's performance (including its enforcement activities).

**3** In this Report, we examine whether the Agency's HGV and PSV enforcement activities at the roadside and at operators' premises are efficient and effective. We examine specifically whether it is inspecting the right operators, makes best use of its resources and contributes to improving compliance and roadworthiness.

### Key findings

**4** Nationally, the Agency is achieving its annual Secretary of State target to increase the number of dangerous vehicles and drivers it removes from the road, removing 28,900 vehicles in 2007-08 and 36,500 vehicles in 2008-09, but performance against targets varies widely between areas. The national target is cascaded to each of the Agency's 21 Areas through targets for achieving Performance Gain points, with points awarded for action taken to remove dangerous vehicles and drivers from the road. The allocation of targets is driven by each Area's staff complement, which is based on historic points of high traffic flows around the country and does not take account of road safety risk or the current volume of commercial vehicle traffic within Areas. In our opinion, the wide variation in Areas' performance may suggest that targets are not realistic, or that some Areas use their resources more efficiently than others.

**5** The Agency publishes an overview of its enforcement objectives in its annual Business Plan. The Department plans to produce a HGV Compliance Strategy which will take into account this Report, to direct further the Agency's efforts. In exercising its strategic leadership role, the Department also has the opportunity to enhance effective joint working between its Agencies to further its objective of improving road safety.

**6** The Agency's approach to enforcement is risk-based and it uses a risk rating system to target roadside inspections and visits to operators' premises for those British operators who are most likely not to comply with regulations. The approach is currently more effective in targeting operators whose vehicles do not comply with roadworthiness regulations rather than traffic offences which present a greater risk to road safety. This is despite the Agency placing an increasing emphasis on enforcing traffic regulations and spending 60 per cent of its enforcement expenditure doing so in 2008-09.

**7** The bulk of inspections, however, are of low or medium risk operators and there remains scope for the Agency to increase the efficiency and effectiveness with which it deploys its resources. The system also does not distinguish sufficiently between the severity of offences; has little separation between operators in Red, Amber and Green risk bands, although the Agency expects this to improve over time; and as a relative system has no defined limit denoting 'acceptable' performance. The risk scoring system reflects the risks to road safety for which the Agency is responsible.

## The Agency's approach to tackling non-compliance

**8** The Agency focuses heavily on roadside checks to enforce regulations, carrying out around 252,000 checks in 2008-09. Most accidents are caused by driver performance or driver behaviour on the road. The police are responsible for enforcing road traffic laws and dealing with breaches. Others in the Department have responsibility for driving standards and road safety policy. The Agency could use roadside checks and operator visits to educate drivers and operators about road safety, but the Performance Gain target system does not encourage staff to do so. The Agency does not have a comprehensive education programme for operators or drivers.

**9** Enforcement is intelligence-led and the Agency is strengthening its management of intelligence. However, its effectiveness at targeting risky commercial vehicles entering the country is constrained by the lack of access to data contained in HM Revenue and Customs' Freight Targeting database of ships manifest and other information and the location of inspections as the Agency cannot always inspect incoming vehicles at ports.

**10** More generally, the effectiveness of roadside checks is constrained because:

- **the Agency's delegated powers to stop vehicles are inconsistently provided across Great Britain.** It has delegated police powers to stop vehicles at the roadside in England and Wales but current accreditation arrangements are cumbersome and inefficient. It does not yet have delegated powers in Scotland. However, subject to Parliamentary approval of the necessary secondary legislation, the Department aims to provide, by October 2010, direct powers for the Agency to stop vehicles throughout Great Britain; and

- **some checksites are situated at locations which are no longer strategically significant.** Some of the Agency's checksites are no longer located on routes with high volumes of commercial traffic. Sites can also be rendered inoperable by local roadworks or diversions.

**11** The Agency's overarching aim is to make roads safer through its role in enforcing compliance with road safety regulations, but it is not possible to determine its impact on road safety as there are many contributory factors to incidents. We, therefore, examined the Agency's enforcement interventions on the assumption that, if it removes dangerous vehicles and tired drivers from the road, it is making roads safer. The Agency's interventions include prohibitions given to vehicles and drivers at the roadside for defects or offences and sanctions in the form of financial penalties. Its prohibition rate increased from 19 per cent of checks in 2004-05 to 33 per cent in 2008-09 for HGVs and from 11 per cent to 19 per cent for PSVs. We estimate that the benefits derived from the number of accidents prevented by the Agency's enforcement work in removing dangerous British HGVs from major roads is likely to outweigh the costs of HGV enforcement. This is a conservative estimate of the benefit and does not take into account, for example, non-British HGVs, the deterrent effect or avoiding disruption to the network when incidents not involving casualties occur.

**12** Not all sanctions can be deployed effectively against foreign drivers, for example, because they do not have a permanent British address, although the introduction in May 2009 of fixed penalties should improve the Agency's ability to sanction them. The Agency has so far issued around 10,000 fixed penalties to drivers who are not resident in the United Kingdom, amounting to just over £1 million. The Agency has no direct power to sanction the licences of foreign operators, although it does pass information on non-compliant operators to the relevant foreign authorities.

## Conclusion on value for money

**13** The Agency successfully meets the requirements placed upon it for enforcing regulations against commercial vehicles and has succeeded in increasing the number of dangerous commercial vehicles and drivers that it removes from the roads from 28,900 in 2007-08 to 36,500 in 2008-09. Our estimates suggest that the benefits are likely to exceed the Agency's expenditure. These are satisfactory results. But in our opinion the Agency could deliver significantly better value for money through refining its systems for scoring risk and its targets and deploying staff so as to make better use of its resources. There are also a number of long-standing issues such as the location of checksites which the Department, together with the Agency, must address both to improve value for money and make the Agency's work more effective. The Agency could do more to address the root causes of non-compliance by working with other parts of the Department to ensure that there is a comprehensive education programme for higher risk commercial vehicle operators and drivers.

## Recommendations

### On the Agency's strategic direction

**14** **The Agency** should use the opportunity of its enforcement activities to educate commercial vehicle drivers and operators to tackle the causes of non-compliance. This should include:

- targeting drivers and operators with publicity on safer driving in conjunction with the Department and other agencies, for example, through the Department's **Think!** or other road safety campaigns; and
- incorporating an educational element into all operator visits including the benefits of a good road safety culture.

**15** **The Agency** should, within the areas of its responsibility, develop an action plan to identify and address the biggest risks to road safety posed by commercial vehicles. The plan should address:

- the deployment of staff flexibly around the country, including the costs and benefits of such restructuring;
- enhancing its work with other agencies, such as the Highways Agency, the police and the UK Border Agency who may be better placed to spot behaviour which could lead to accidents, or to carry out checks on certain groups of drivers and operators; and
- the location of checksites for checking commercial vehicles, including those entering the country and working in partnership with others such as the Highways Agency to relocate checksites on the strategic road network.

**16** **The Department,** in developing its HGV Compliance Strategy, should explicitly address the contribution that the Agency can make towards achieving its overall objective of improved road safety and ensure that arrangements are in place for it to work effectively with other Departmental agencies in pursuit of that objective.

### On the Agency's management of enforcement

**17** **The Agency** should:

**a** improve the accuracy of the risk scoring system, for example, by;

- introducing a graduated transition from historic to predictive scores based on diminishing encounters over time; and
- separating more effectively operators in Red, Amber and Green risk bands.

**b** revise its Performance Gain points system to reflect appropriately the relative importance of its various educational and enforcement activities; and

**c** set up formal data-sharing arrangements with HM Revenue and Customs to enable it to target vehicles at or near ports more effectively, agreeing its minimum data requirements so that only essential information is shared.

**18** **The Department** should:

**a** assist the Agency in negotiations with, respectively, the Home Office and port authorities to:

- find a common agreement with all police forces to streamline annual renewals for delegated powers to stop vehicles in advance of any legislative change; and
- develop a solution that allows the Agency to carry out effective enforcement activities against selected high risk commercial vehicles on international journeys.

**b** encourage operators to develop further systematic and long-term driver training programmes to improve performance and behaviour on the road which lie at the heart of road safety.

# Part One

## Targeting enforcement

**1.1** Commercial vehicles (Heavy Goods Vehicles (HGVs) and Public Service Vehicles (PSVs), mainly buses and coaches) must comply with a wide variety of roadworthiness and traffic regulations covering maintenance, weight limits and drivers' hours.[1] There are 436,000 HGVs and 111,000 PSVs currently licensed on the road in Great Britain, and 355,000 HGVs and 90,000 PSVs under an operating licence.[2] There are also an estimated 13,100 non-British licensed HGVs and 1,300 PSVs travelling on the United Kingdom's roads (there is no data available for Great Britain) on any given day.[3]

**1.2** The Vehicle and Operator Services Agency (the Agency), a trading fund of the Department for Transport (the Department), provides licensing, testing and enforcement services to commercial vehicles with the aim of improving compliance. It operates throughout Great Britain through three regions which are subdivided into 21 Areas. The Agency's main enforcement activities, in addition to the annual statutory test, are roadside inspections to check vehicles' compliance with mechanical and traffic (loading and drivers' hours) regulations; and inspections at operators' premises to check compliance across their fleet and vehicle maintenance management systems. The Agency spent £44.8 million on enforcement activities in 2008-09, including £36.6 million on commercial vehicle enforcement, and employed 803 enforcement staff in March 2009. Of these, 347 were vehicle examiners (qualified mechanics), 263 were traffic examiners (experienced in transport management or law enforcement) and 74 were enforcement support officers (who identify and intercept vehicles for examination). Some of these staff also carried out other Agency activities such as enforcing the administration of the MOT scheme.

1 HGVs over 3.5 tonnes and PSVs with more than eight passenger seats.
2 Transport Statistics Great Britain 2009, which uses data on the number of vehicles licensed on the road. The Agency's Operator Business Licensing System gives the number of vehicles operating under terms of an Operator's Licence.
3 SPARKS Programme, *Foreign registered vehicles on UK roads*, July 2007.

## Funding

**1.3** Funding for enforcement has increased from £21.8 million in 2003-04 (at 2008-09 prices) to £37.6 million in 2008-09 (**Figure 1**). In 2008-09, £24 million of this came from a portion of the fees paid by commercial vehicle operators and is used to pay for enforcement of regulations on British commercial vehicles.[4] The Department also provides funding for commercial vehicle enforcement from its Single Enforcement Budget. In 2008-09 this amounted to £13.7 million,[5] including £5.8 million running costs for Year 1 of the Agency's new three-year High Risk Traffic Initiative, a £24.3 million Department-funded project targeting high risk vehicles on international journeys using teams of examiners working day and night shifts every day of the week. The Department also provided the Agency with £1.5 million capital funding for the High Risk Traffic Initiative. In 2008-09, the Agency spent £36.6 million on commercial vehicle enforcement.

**Figure 1**
HGV and PSV enforcement income, 2003-04 to 2008-09


*Source: Vehicle and Operator Services Agency management information*

**NOTE**
All figures are at 2008-09 prices.

4 The rest of the licence fee is used to fund the administration of operator licensing.
5 The Department provided the Agency with a total of £13.7 million in Single Enforcement Budget funding for commercial vehicle enforcement which includes roadside and operator site enforcement as well as minor schemes such as bus punctuality.

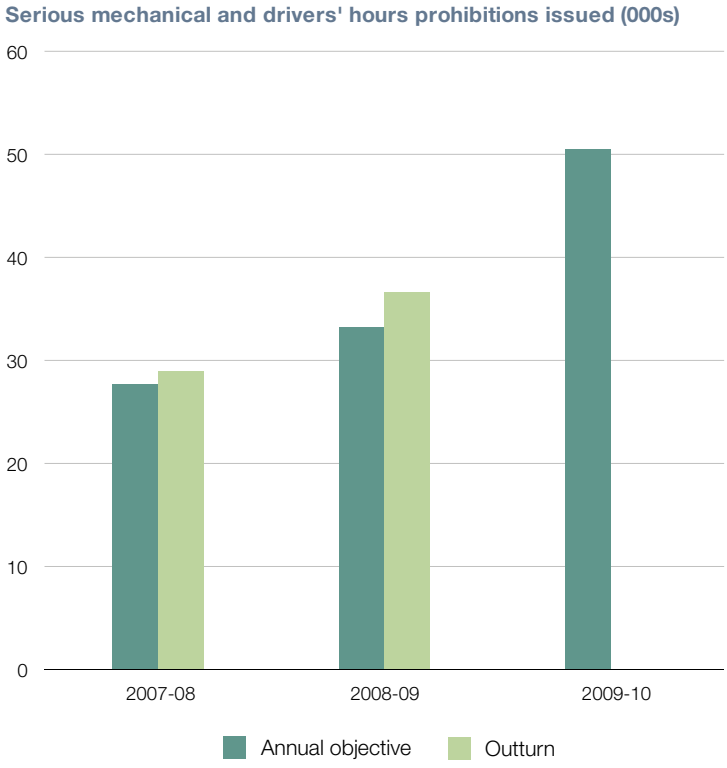
## Targeting resources and acitivities

**1.4** The Department plays a significant role in determining the Agency's priorities. It stipulates the level of enforcement activity required across a range of regulatory schemes which it funds from the Single Enforcement Budget, including the enforcement of regulations on non-British registered vehicles. It agrees objectives, Secretary of State targets and budget each year. The Department monitors the Agency's vehicle enforcement activities for those schemes which it funds through a quarterly Enforcement Board.

**1.5** Since 2007-08, one of the Agency's Secretary of State targets has focused on removing dangerous vehicles and drivers from the road, with a target in 2008-09 to increase the number taken off the road by 15 per cent (33,200 vehicles) compared with the number of vehicles removed in 2007-08 (28,900). For 2009-10, the target is to achieve a 75 per cent increase (50,500 vehicles) compared to 2007-08. The Agency achieved its targets in 2007-08 and 2008-09, removing 28,900 (against a target of 27,700) and 36,500 dangerous vehicles and drivers from the road respectively (**Figure 2**).

**Figure 2**

Performance against objective to remove dangerous vehicles and drivers from the road




*Source: Vehicle and Operator Services Agency data*

**1.6** The Agency aims to achieve its target in part by becoming more effective, but largely through an increase in resources. The major contribution to the 75 per cent target is expected to come from the High Risk Traffic Initiative, based on the results of a pilot project held in the South East in 2006-07 and related research, and we found that these estimates were realistic. However, the business case for the Initiative assumed that prohibition rates from increased checks would remain as for normal business and did not consider the possible impact of the current economic downturn on the volume of traffic available for checking. The Agency considers that non-compliance will increase as a result of economic pressures on operators and that this will offset any reduction in commercial vehicle traffic.

**1.7** The Agency sets each of its 21 Areas' annual enforcement targets across the range of enforcement activities through:

- Performance Gain points which are intended to encourage more effective targeting of enforcement by awarding more points for those activities that the Agency wants staff to perform, for example impounding vehicles where there is a risk that the driver will abscond (500 points), serious mechanical prohibitions and drivers' hours prohibitions (100 points each). The majority of the Agency's activities attract less than five Performance Gain points.
- Input hours targets which are intended to ensure that Areas devote the required proportion of their time to each activity.

**1.8** The Performance Gain points system has some shortcomings, in terms of the number of points awarded for specific activities, which may not provide an incentive to perform important tasks.

- Advisory visits to operators and other 'education' activities, which have the potential to improve behaviour, attract only 10 points.
- Similar activities performed across HGVs and PSVs attract the same points, for example three points each for a roadworthiness roadside check, despite HGVs posing a greater risk to road safety than PSVs.
- The current points tariffs do not reflect the time taken to perform different tasks, for example a roadside check gives three points and a fleet inspection at an operator visit one point despite the latter taking much longer.

**1.9** Allocation of targets also determines the amount of inspection activity within an Area. The Agency allocates targets based on the resources available in each Area, normally the staff complement that each Area is expected to have at the start of the financial year adjusted for non-productive time. For 2009-10, however, because of financial constraints, targets were based on the number of staff in post on 1 April 2009. Area staff complements were initially determined by factors such as the number of operators and the presence of major transport links or ports. The Agency assumes that these underlying characteristics have remained largely the same. We compared Areas' staffing levels and Performance Gain points with the number of accidents and the number of kilometres travelled by commercial vehicles in an Area and could not find a correlation with levels of road safety

risk or the volume of commercial vehicle traffic. This suggests that the Agency's resources may not be directed to the locations with highest risk. The Agency also has not assessed each Area's road safety risk or risk of operator non-compliance to inform target setting. It does redeploy staff on a temporary basis within and between Areas, or between vehicle testing and enforcement, to meet particular problems but considers extensive movement between Areas to be inefficient in the long term due to travelling time and the costs involved. In the three-year High Risk Traffic Initiative, however, the Agency has taken a strategic approach and has allocated enforcement staff to locations with known high commercial traffic flows and incident hotspots.

**1.10** There is wide variation in performance against targets between areas (**Figure 3** overleaf). Metropolitan and Hertfordshire & Essex Areas had the poorest results for HGVs and PSVs, respectively, which the Agency attributes to staff shortages in the year, due in part to the need to reallocate enforcement staff to carry out statutory vehicle testing. Area and regional managers review performance against targets on a monthly basis. The Operations management team adjusts and prioritises targets between areas where unforeseen changes, such as roadworks on the local road networks affect traffic flows and jeopardise the attainment of performance targets. Management information systems are not updated with the revised targets throughout the year, which explains in part the variation in performance, and suggests that targets are not being set effectively to drive performance improvements. The wide variation in target achievement suggests that some Areas' targets may offer insufficient challenge, whilst others are unrealistically high. In our view, this may mean that some Areas are using their resources more efficiently or effectively than others. It might also reflect changes in the pattern of commercial traffic which, again, might warrant a redirection of resources.

## The Agency's role in enforcing commercial vehicle regulations

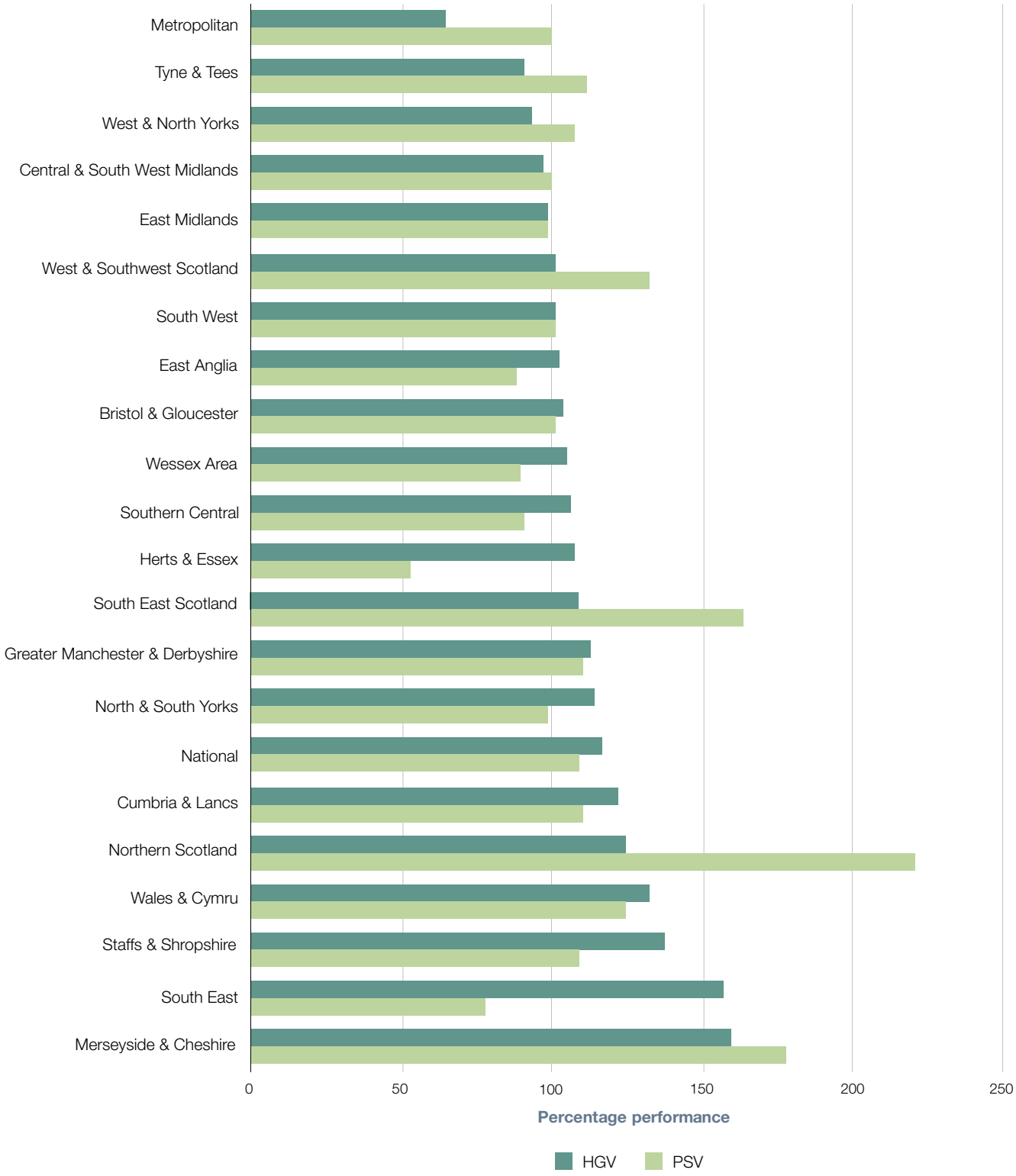
**1.11** The Agency sets out its high-level enforcement objectives in its Business Plan. The Department is currently devising an HGV compliance strategy to direct the Agency's work further. The strategy will take into account the recommendations of this Report and will set the parameters for the Agency's 2010-11 Business Plan. The Department's strategy covers all elements of HGV compliance; that is, activities funded by fees as well as schemes funded by the Single Enforcement Budget. Responsibility for developing the strategy lies with the Department, with the Agency responsible for delivery.

**1.12** The Agency directs its enforcement activity against two broad areas of non-compliance:

- **Roadworthiness defects:** including brakes, tyres and steering. These checks are undertaken by Vehicle Examiners; and
- **Traffic offences:** primarily overloading and drivers' hours regulations as well as operator licensing. Checks are undertaken by Traffic Examiners.

## Figure 3

Area performance against Performance Gain points targets 2008-09




*Source: National Audit Office analysis of Agency data*

**1.13** The Agency has developed a risk-based approach to its enforcement activities, using an operational risk rating system, the Operator Compliance Risk Score, to help identify and target roadside inspections and operator visits at British operators that are most likely to be non-compliant. The risk rating system:

- generates scores at each encounter between the Agency's examiners and an operator (or their vehicles or drivers) by assigning points to reflect the number and severity of defects or offences identified;
- assigns operators' separate roadworthiness and traffic risk scores to Red, Amber or Green risk bands which examiners use to choose vehicles to inspect, for example Red should always be checked, Amber sometimes, and Green rarely (**Figure 4**); and
- can be predictive or historic: historic scores are based on the Agency's data from testing and enforcement undertaken in the previous 24 months; predictive scores are generated for operators for whom the Agency has no recent historic data, and are based on the average score for operators with similar licence characteristics. As at April 2009, 16 per cent of roadworthiness and 68 per cent of traffic scores for HGVs were predictive and 47 per cent of roadworthiness and 65 per cent of traffic scores for PSVs were predictive.

## Figure 4
Risk banding in use in 2008-09

| Percentile Band (%) | Index Score | Roadworthiness risk (mechanical) | Traffic enforcement risk (non-mechanical) |
|---|---|---|---|
| 0 (points) | 0 | ● | ● |
| 1-10 | 1 | ● | ● |
| 11-20 | 2 | ● | ● |
| 21-30 | 3 | ● | ● |
| 31-40 | 4 | ● | ● |
| 41-50 | 5 | ● | ● |
| 51-60 | 6 | ● | ● |
| 61-70 | 7 | ● | ● |
| 71-80 | 8 | ● | ● |
| 81-90 | 9 | ● | ● |
| 91-100 | 10 | ● | ● |

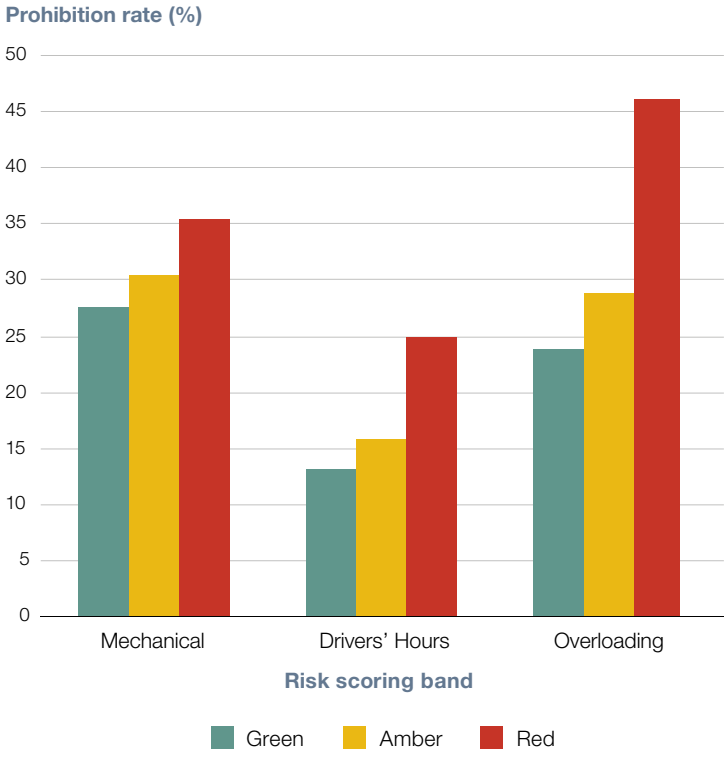
*Source: Vehicle and Operator Services Agency*

**1.14** The Agency does not yet have a risk rating system for non-British registered commercial vehicles as it holds comparatively little information about them. Data entry errors made by examiners at the roadside, such as misspelt names, also make it difficult to collate information about individual foreign drivers or operators. The Agency is currently cleansing these data entries and plans to introduce an appropriate risk rating system for non-British registered operators in 2010 using historic data.

## Use of the risk rating system

**1.15** Evidence suggests that the risk rating system allows the Agency to target vehicles that are more likely not to comply with regulations. Our analysis showed that the prohibition rate increases with risk rating score, indicating that the rating is a helpful measure in targeting encounters (**Figure 5**).

**Figure 5**
HGV prohibition rates by risk scoring band, 2008-09




*Source: National Audit Office analysis of Agency data*

**1.16** Our analysis of HGV inspection data for 2008-09 showed that the risk rating system was used more effectively to target higher risk vehicles for roadworthiness than for traffic offences. Only 6.7 per cent of HGVs were classified as Red for roadworthiness, but 17 per cent of inspections were of Red vehicles. The proportion of Red vehicle inspections for traffic offences in the year broadly matched the assessed proportion of Red operators in the population as a whole (8.2 per cent of inspections compared to 6.7 per cent assessed as Red), implying that the Agency does not stop a high proportion of higher risk vehicles for traffic offences. The bulk of inspections undertaken in both groups, however, are of Green or Amber rated operators and there remains further scope for the Agency to improve its targeting and to increase the efficiency and effectiveness with which it deploys its resources. The Agency anticipates that more widespread use of Automatic Number Plate Recognition technology will assist with targeting of traffic offences.

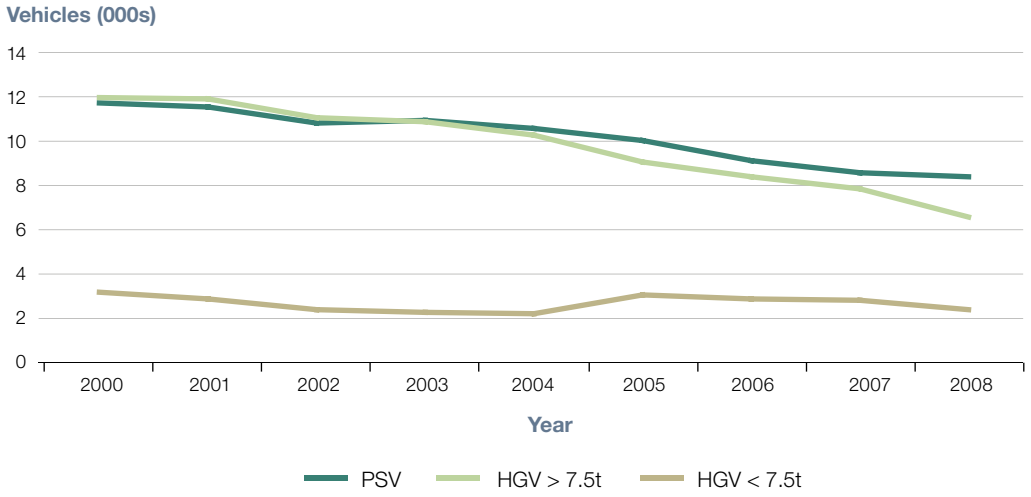
**1.17** Since 2007, the Agency has used a risk rating system to help it target non-compliant operators and vehicles. There are some problems with the system as it:

- relies partially on predictive scoring, which is not accurate. Our analysis showed that predictive scores are also usually more pessimistic than historic and result in a worse risk banding;
- does not distinguish between the severity of offences, although the Agency plans to introduce this element following the introduction of graduated fixed penalties which correlate to the severity of an offence;
- has little absolute separation between operators in the Red, Amber and Green risk bands;
- has no defined limit denoting 'acceptable' performance so that operators could improve, but their risk rating could deteriorate if their rate of improvement was below average. Over time, this may lead to ineffective use of the Agency's resources; and
- assigns operators separate risk scores for traffic and roadworthiness offences but treats Red performers equally in each, although the Agency recognises that traffic offences are a greater risk to road safety than roadworthiness defects.

## Factors that contribute to road accidents

**1.18** The number of commercial vehicles involved in accidents is generally decreasing, but they still account for a disproportionate number of serious casualties (**Figure 6** overleaf). In 2008, HGVs represented nearly six per cent of traffic on Great Britain's roads but comprised nine per cent of vehicles involved in fatal accidents (379 vehicles). Similarly, PSVs comprised around one per cent of traffic during 2008 and comprised 2.3 per cent of vehicles involved in fatal accidents (98 vehicles).

**Figure 6**
Number of vehicles involved in accidents, 2000-08




*Source: National Audit Office analysis of Department for Transport data*

**1.19** We analysed the Department's road safety data[6] and the Agency's own data on accidents and found that:

- the main risk factors contributing to commercial vehicle accidents related to driver experience, performance and behaviour. Mechanical faults were not major factors but, where they did occur, they tended to relate to tyre and brake defects, which the Agency checks for and influences through its education work;
- the most severe accidents involving British registered vehicles were associated with driver performance, principally tiredness, and for foreign vehicles mechanical condition and some driver related factors, some of which the Agency may be able to influence through its inspections;
- most accidents are attributed to driver actions which fall outside the Agency's remit and Agency examiners are unlikely to check or be able to influence them directly during roadside checks or visits to operators' premises, for example failing to look properly or to judge another person's path or speed. The Agency is not responsible for tackling poor driving or driver fatigue, although it may be able to influence some of these behaviours through roadworthiness and traffic compliance inspections and education work; and

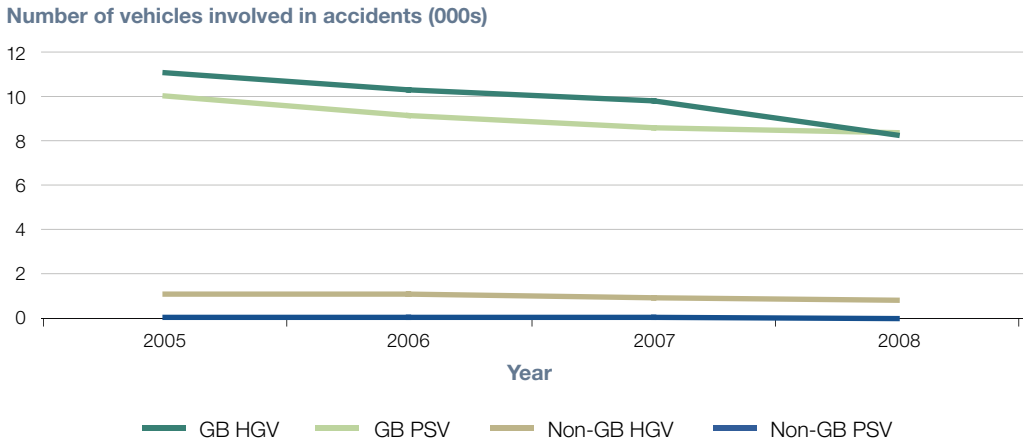
6 In 2005, the Department introduced a new system for police forces to collect information on factors contributing to road traffic collisions. Although some factors recorded are the subjective view of the police officer after the accident has happened, this data is the most comprehensive available on road accidents in Great Britain.

- overall, foreign registered HGVs presented a higher risk to road safety than British registered vehicles, on the basis of the number of equivalent fatalities per vehicle kilometre travelled.[7] However, British HGVs were involved in a greater number of road accidents as they travelled around 25 times more vehicle kilometres on British roads than foreign commercial vehicles (**Figure 7**).

**1.20** We compared the factors that contribute to road accidents (measured by equivalent fatalities per billion vehicle kilometres) with the Agency's assessment of risk used in its risk scoring system. We found that, while the risk scoring system assesses all mechanical contributors to road accidents in calculating its roadworthiness score, there is no correlation and, therefore, logic between the level of risk posed by each factor and the score given (**Figure 8** overleaf). This carries the risk that resources are being channelled into factors that do not have a significant impact on road safety. Of the 21 contributory factors caused by drivers, the Agency is responsible for checking five: exceeding drivers' hours limits, exceeding the speed set by speed limiters, over or poorly loaded vehicles, vehicle blind spot and vision distraction in vehicle. The first three of these are used to calculate the traffic risk score (**Figure 9 on page 21**), and the last two the roadworthiness score. The remaining 16 factors are the responsibility of other enforcement agencies, primarily the police. As well as improving road safety, the Agency also aims to reduce traffic incidents which may not cause many fatalities but can cause significant congestion and damage the infrastructure.

## Figure 7

Involvement of British and foreign commercial vehicles in road accidents 2005-08

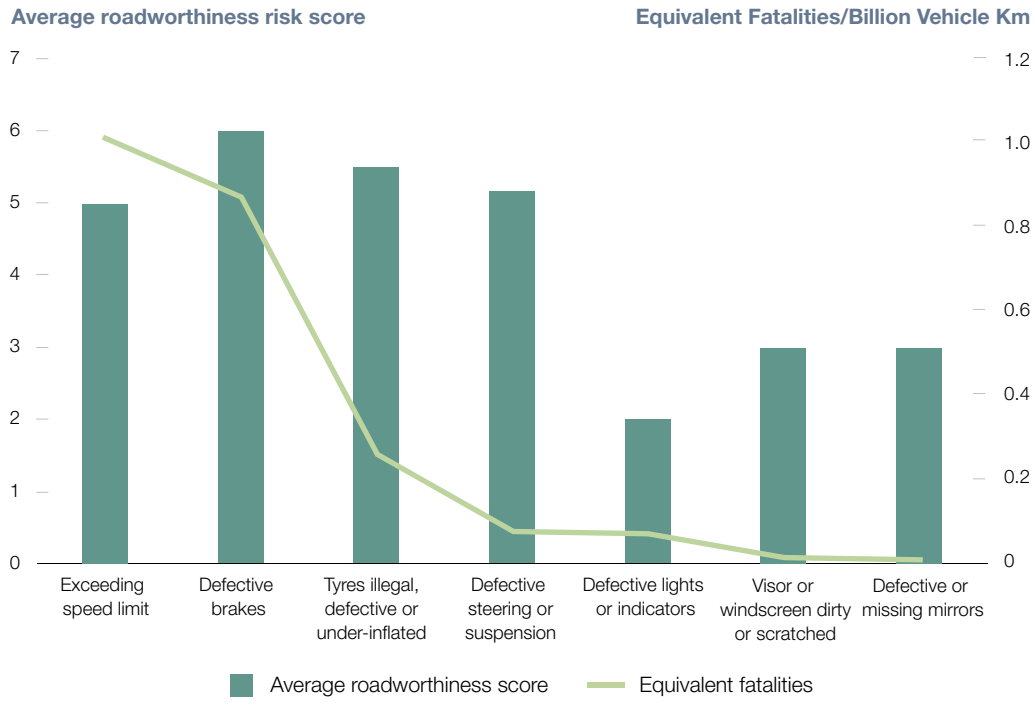



*Source: National Audit Office analysis of Department for Transport data*

7 Equivalent Fatalities: a weighted sum of Fatal, Serious and Slight injuries, where 10 serious and 100 slight injuries were considered to be equivalent to a single fatality.

## Figure 8

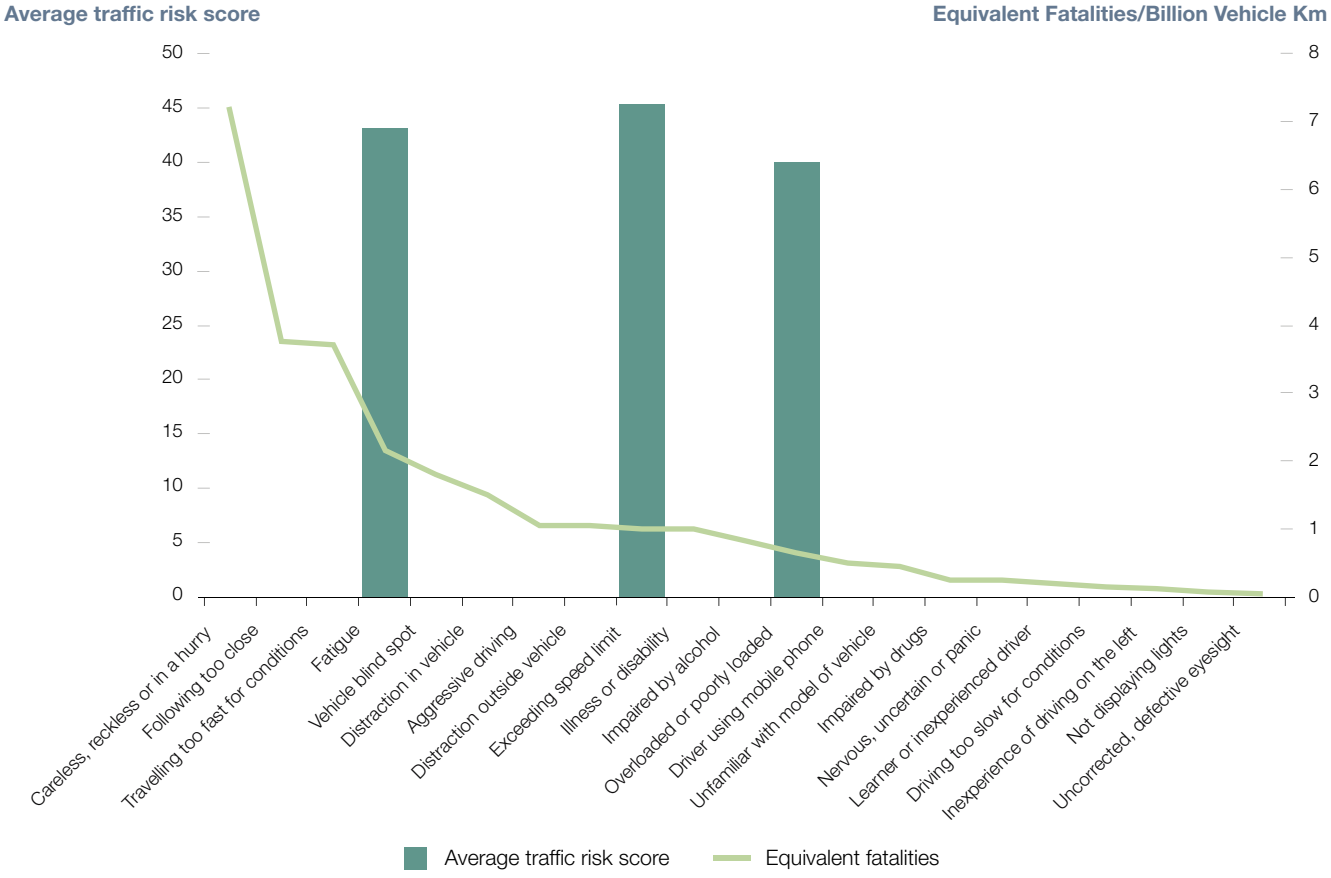
Mapping of roadworthiness risk scores and mechanical contributory factors to accidents




*Source: National Audit Office analysis of Department for Transport and Agency data*

## Figure 9

Mapping of traffic risk scores and traffic contributory factors to accidents




*Source: National Audit Office analysis of Department for Transport and Agency data*

**NOTE**

Only the contributory factors with bars are included in the traffic risk score. Vehicle blind spot and distraction in vehicle contribute to the roadworthiness risk score.

# Part Two

## Enforcement of regulations on commercial vehicles

### The Agency's approach

**2.1** The Agency's current approach comprises:

- Prevention;
- Intelligence; and
- Enforcement.

The Agency enforces regulations mainly through roadside and fleet checks, informed by intelligence including data obtained from the Agency's own management systems, from other government departments and agencies and from members of the public.

### Prevention

**2.2** Better regulation principles suggest that proactive education of businesses is an effective enforcement tool in its own right and should be used to complement other compliance approaches. Although the Agency does not have a comprehensive education programme, it provides a range of information to operators and some enforcement activities contain an educational element:

- operator visits are normally undertaken following the granting of new operator licences or licence variations. In addition to advice on working time, examiners may give advice where they find systemic problems but they are not required to advise on an operator's over-arching road safety management system. Research by the Department indicated that operators with a named examiner to contact found this the most positive aspect of their relationship with the Agency.[8] The Agency's Performance Gain points system does not, however, incentivise examiners to invest time in educating operators at operator visits; and
- the Agency provides free information and leaflets for operators and drivers including via its website, such as guides for drivers on the new fixed penalties and for operators on maintaining roadworthiness. It also runs courses for operators and drivers on aspects of vehicle maintenance, for which it charges a fee, although

8 Customer engagement: the road to non-compliance, research by KSBR Brand Futures for the Department for Transport, February 2009.

research by the Department found that few operators knew that the Agency ran seminars.[9] The Agency works in partnership with the Highways Agency and industry representatives to produce education packs for commercial drivers.

## Intelligence

**2.3** The Agency uses a wide range of intelligence sources, including its own management information and data from external sources such as the police, UK Border Agency, the Environment Agency and the Driver and Vehicle Licensing Agency. It receives intelligence from members of the public via an enquiry line. The Agency has limited intelligence about non-British registered operators.

**2.4** Intelligence is received, processed and disseminated to Areas by seven Regional Intelligence Units. In 2008-09, Regional Intelligence Units sent 5,612 intelligence reports to Areas for action, commonly about maintenance, illegal HGV operators and drivers' hours infringements. In common with the police and other enforcement agencies, Regional Intelligence Units assess the reliability of incoming intelligence by grading the reliability of the source, but this system does not prioritise intelligence according to risk. The Agency is currently developing a prioritisation process. At present, it cannot demonstrate the value of the Regional Intelligence Units as there is no reliable measure of their outcomes, but it is developing a means of doing so for 2010-11. The Regional Intelligence Units' current target is to forward 20 per cent of the intelligence they gather to Areas for action, which in our view provides little incentive for providing less but higher quality intelligence and may lead to wasteful use of resources. The Agency intends to set a target based on how intelligence is used in investigations from 2010-11.

**2.5** Access to information contained in HM Revenue and Customs' Freight Targeting database could significantly improve the Agency's ability to identify non-compliant vehicles at their point of entry into Britain. The database holds information on vehicles' registration numbers, drivers and operators which examiners could compare with their own data systems for matches with known high risk vehicles. The Agency explained that access to the database needs to be carried out within the framework set up by data protection legislation and it has been in negotiation about how to obtain the information that it needs since Autumn 2008 but has yet to reach agreement.

**2.6** European Union Directives require commercial vehicle enforcement agencies to share data on non-compliance. While the Agency passes details of offenders to relevant foreign authorities it receives data from some, but not all, Member States' enforcement bodies, either because they are unable or unwilling to share information or because they inspect few British vehicles. More information would help to build up further intelligence on British operators who may be non-compliant whilst overseas and the potential risks that they might pose in Great Britain. New European Union legislation is due at the end of 2009 which will require Member States, by 31 December 2015, to inform each other of breaches of a list of serious offences committed by their operators whilst travelling in the European Union.

9 Customer engagement: the road to non-compliance, research by KSBR Brand Futures for the Department for Transport, February 2009.

## Enforcement

**2.7** The Agency uses roadside checks and operator visits to identify and deal with non-compliance. The number of roadside checks carried out fell by 18 per cent from 223,000 in 2004-05 to 183,000 in 2007-08 and the Agency attributes this in part to examiners spending more time preparing for changes in MOT garage enforcement. During this period, the Agency's enforcement income increased and it believes that tools such as the risk scoring system and ANPR allowed examiners to target non-compliant vehicles more effectively, leading to more prohibitions which take longer to process, resulting in fewer, but more effective, checks. The number of checks then increased by 38 per cent in 2008-09 to 252,000 partly due to the deployment of 82 additional examiners for the High Risk Traffic Initiative. It is too soon to conclude on outcomes of the Initiative but data from the first year of operation indicate that the achieved prohibition rate was around 40 per cent, a seven percentage point improvement on non-High Risk Traffic Initiative operations. Examiners also carry out visits to operator premises to assess their management systems such as vehicle maintenance plans and drivers' compliance with working time regulations.

### Barriers to stopping higher risk vehicles

**2.8 Access to ports.** Inspecting vehicles at or near ports allows the Agency to prohibit non-compliant vehicles or drivers at an early stage on their journey on the road network or before leaving the country. The Agency has no rights of access to British ports and depends on the goodwill of port authorities to permit examiners to be present on their private premises and has agreed to give proportionate attention to each port based on the volume of traffic. The Agency attempts to resolve any problems that arise through negotiations with individual port authorities or with the British Ports Association. Port authorities were concerned that disruption and delays caused by vehicle enforcement would prompt customers to use other ports with less visible disruption from vehicle enforcement activity. At Birkenhead, for example, the operator of 12 Quays ferry terminal told us it had barred the Agency from its premises because examiners' activities inside the port put it at a commercial disadvantage and for health and safety reasons due to the lack of on-site space. In response, the Agency operates a checksite five miles from the port. More generally, the Agency is exploring the option of locating roadside checks on major roads which lead to ports rather than within ports themselves.

**2.9 Ability to stop vehicles.** The Agency gained delegated powers from police forces in England and Wales to stop vehicles at the roadside in 2004. In Scotland, the Department has not yet completed the legal process to introduce powers to stop, expected by October 2010, and so all roadside checks in Scotland must be attended by a police officer. This can be disruptive and less efficient as checks are dependent on police availability and on officers' ability to select the right vehicles to examine. During our visit to Scotland, we observed that the police officer directed all HGVs on the road into the roadside check where they waited to be assessed for compliance using the risk scoring system. Only vehicles deemed non-compliant were examined, and all other vehicles were permitted to continue their journey. Police forces in England and Wales also told us that giving the Agency powers to stop had enabled them to redeploy officers to other, more productive, police tasks.

**2.10 Availability of Automatic Number Plate Recognition (ANPR) technology.** The Agency has introduced ANPR technology which it uses to identify, for example, vehicles without an operating licence, non-British registered vehicles with an outstanding prohibition and vehicles rated Red on the risk system. In a 2004 trial, the Agency found that 54 per cent of vehicles stopped using mobile ANPR equipment were given at least one prohibition or further enquiry (74 out of 137 vehicles), compared with 11 per cent of vehicles stopped during the same period in a different Area without the aid of ANPR technology (243 out of 2,297 vehicles). The Agency currently has 76 stopping vehicles, of which 20 are fitted with mobile ANPR technology. Three Areas have no ANPR equipped vehicles. The Agency was only able to make limited use of ANPR technology between January 2008 and May 2009, however, due to the need to make its cameras comply with government restrictions on the transfer of personal data. The Agency shares its fixed cameras with some police forces and also shares ANPR data with the Central Motorway Police Group in the Midlands.

**2.11 The location of its fixed checksites.** Some of the Agency's fixed checksites are no longer located at strategically important locations due in part to changes to the road network over time. For example, although motorways are the main transport routes used by HGVs, there are substantial sections of the motorway network, such as in the West and Central Midlands and North West, with few fixed checksites (**Figure 10** overleaf). Where there are no fixed checksites on motorways, the Agency carries out inspections at service stations, although it needs to ensure that these are proportionate in nature. In our written consultation, some respondents commented on the absence of enforcement activity on some heavily-used roads owing to a lack of checksites. Some examiners considered that poorly located checksites are one of the biggest challenges they face. At one checksite we visited, enforcement support officers had to drive a 12-mile round trip to bring vehicles into the site for inspection. In May 2009, the Agency, jointly with the Highways Agency, commissioned research to identify where best to locate checksites on motorways and trunk roads. Building on this research, it began developing a strategy for checksites as part of a joint working project with the Highways Agency. Although this project has been delayed pending completion of the Department's HGV compliance strategy the two Agencies have agreed appropriate locations for some new checksites. The Agency told us that its first new site is now open at Sandbach and that others are planned.

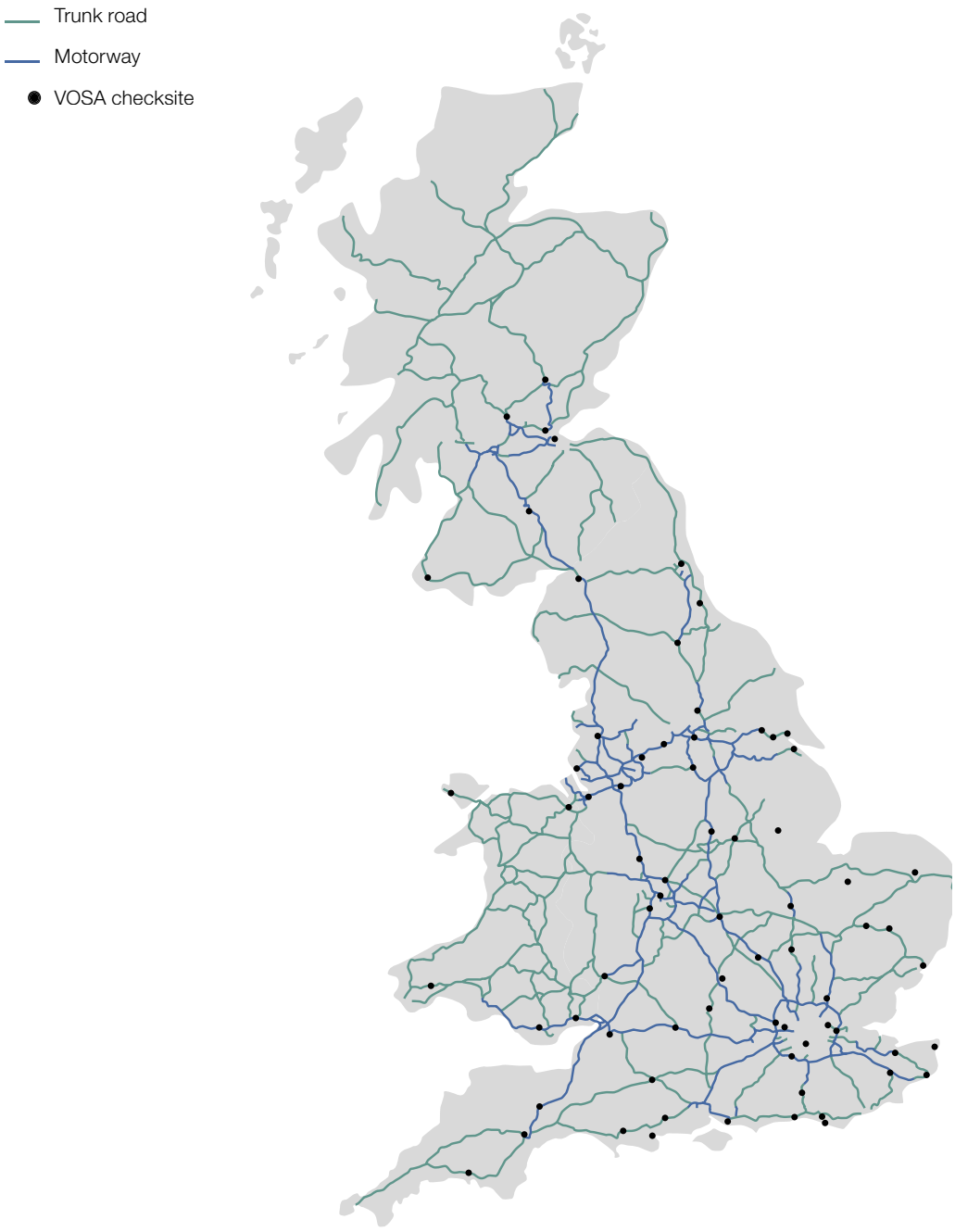
**2.12** There are other problems with checksites:

- Roadworks or road diversions can make them unusable. For health and safety reasons, examiners can only use approved lay-bys which, in some cases, has reduced the number of suitable checksites.

- Some have limited space for parking vehicles. This can become a problem when drivers have to rectify a defect; on one of our visits, the checksite became filled with vehicles and unusable for further examinations. Parking is a problem at ports where space is particularly limited, and on certain heavily used routes in the South East. This problem may increase as, from May 2009, examiners use new powers under the Road Safety Act 2006 to immobilise vehicles for non-payment of penalties.

**Figure 10**

Location of the Agency's checksites in relation to the motorway and trunk road network in Great Britain




*Source: National Audit Office analysis of Vehicle and Operator Services Agency data*

## Working with others

**2.13** A range of other bodies may take part in roadside checks, such as the police, HM Revenue & Customs, the Environment Agency, the Department for Work and Pensions, local authorities, and the UK Border Agency at ports. The Agency participates in multi-agency inspections, which the police tend to coordinate, mainly on a local basis according to need and demand. We found that joint operations in 2008-09 resulted in a higher proportion of prohibitions issued for drivers' hours and overloading offences (39 per cent of inspections for British vehicles) than the Agency's overall checks (18 per cent for British vehicles). They also resulted in a higher proportion of prohibitions issued to British vehicles for roadworthiness defects (38 per cent compared with 32 per cent), although a lower proportion for non-British vehicles (31 per cent compared with 42 per cent). Police forces told us that they found joint inspections useful for transferring skills and training police officers in vehicle examinations.

**2.14** Under the Police Reform Act 2002, the Agency depends upon the police in England and Wales to provide its enforcement support officers with accreditation to stop vehicles. The current process is inefficient. After undertaking an initial two-week training course run by North Wales Police, enforcement support officers must apply for accreditation separately to each police force in whose district they operate each year. Processes vary between police forces and the Agency considers that some forces are particularly slow at processing the accreditations. The Agency told us that the time taken to process accreditations ranges from one day to six months, with an average of two to three months. Around 20 forces offer the Agency biennial accreditation. The Home Office considers that the widely varying processing times may reflect the staff resources allocated by each force to administer its scheme. The Department intends to propose legislative change to give the Agency direct powers to stop throughout Great Britain, which would remove the need for police accreditation.

## Outcomes from enforcement activity

**2.15** The Agency's overarching aim is to make roads safer, contributing towards a Departmental target to improve road safety and journey reliability times. It is not possible to determine with any certainty the impact that it has on road safety, however, as there are many contributory factors to incidents which cannot be disaggregated. In the absence of direct causal links to road safety, we examined the interventions available to the Agency assuming that, if the Agency prohibits a vehicle, it is taking action to tackle a risk to road safety. The Agency has a wide range of interventions available at different levels of severity (**Figure 11** overleaf).

## Figure 11
Interventions available and issued in 2008-09

| Intervention | Outcome of intervention | Number issued in 2008-09 |
|---|---|---|
| Prohibitions for serious brake, steering or tyre defect | Vehicle prohibited from continuing journey until defect rectified. | 7,721 |
| Prohibitions for serious other mechanical defect | Vehicle prohibited from continuing journey until defect rectified. | 15,868 |
| Prohibitions for minor brake, steering or tyre defect | Vehicle permitted to continue journey but prohibition must be rectified and presented for re-testing within ten days. | 18,199 |
| Prohibitions for minor other mechanical defect | Vehicle permitted to continue journey but prohibition must be rectified and presented for re-testing within ten days. | 7,485 |
| Drivers' hours prohibition | Vehicle prohibited from continuing journey until driver has taken required amount of rest. | 20,623 |
| Overloading prohibition | Vehicle prohibited from continuing journey until load is within permitted levels on all axles. | 8,701 |
| Prosecution | Driver and/or operator tried, usually in magistrates' court, for alleged offences. | 3,727 |
| Public inquiry | Operator/driver called before Traffic Commissioner to review fitness to hold an operator's/driver's professional licence. | 1,202[1] |

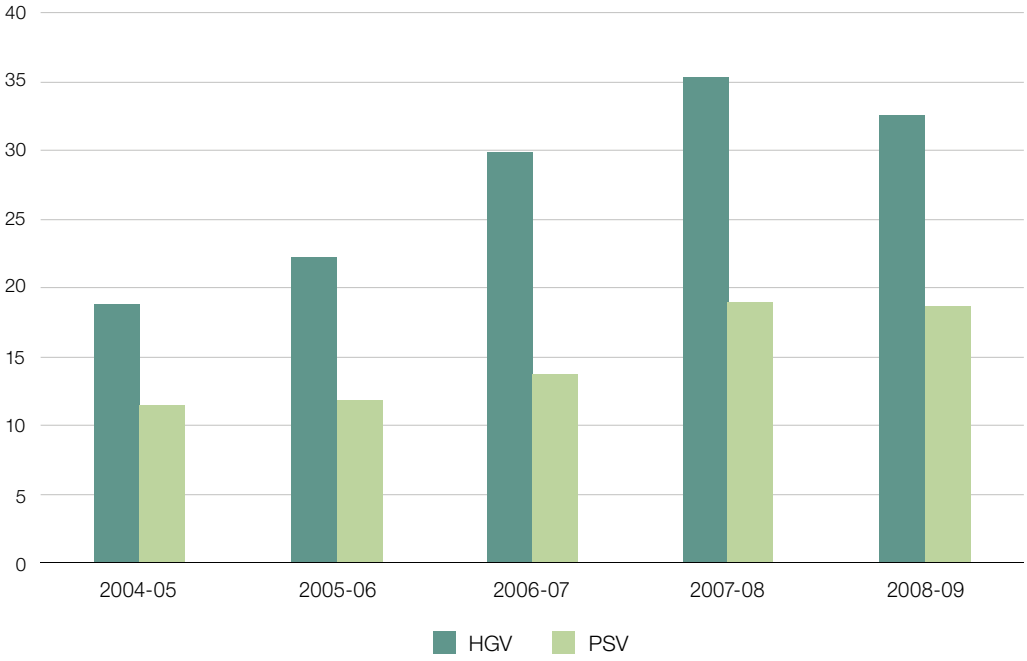
*Source: National Audit Office summary of Agency data*

**NOTE**
1 Traffic Commissioners' Annual Reports 2008-09, Tables 8 and 16.

**2.16** The Agency can issue prohibitions against any driver that it encounters, regardless of nationality. The proportion of HGVs examined at the roadside which received prohibitions increased from 19 per cent in 2004-05 to 33 per cent in 2008-09, including the High Risk Traffic Initiative, and 11 per cent to 19 per cent for PSVs (**Figure 12**). The Agency attributes this to better targeting of non-compliant vehicles, assisted by technological improvements such as the risk scoring system and ANPR. The prohibition rate fell slightly in 2008-09 when the Agency had limited use of ANPR and could not use it for targeting purposes.

**2.17** The Agency can prosecute offences such as interfering with the speed limiter, using a vehicle in a dangerous condition, driving without the appropriate licence, or exceeding daily driving hours. It prosecuted 3,727 cases in 2008-09 and achieved a successful outcome in nearly 99 per cent of cases and secured costs of £0.9 million. It has focused its expertise within a central prosecution team which ensures that case files received from examiners are of a suitable quality to go to court. Examiners are trained to present their own cases and to give evidence in magistrates' court; contract solicitors are used only when the defendant pleads not guilty (the Agency estimates around four to five per cent of cases). One Area has arranged that a single local

## Figure 12
The proportion of roadside checks receiving prohibitions




*Source: National Audit Office analysis of Agency data*

magistrates' court will take all of the Area's prosecutions on a given day each month so that the magistrates will gain a better understanding of the Agency's cases and so provide fairer hearings and appropriate sentences.

**2.18** The Agency can also recommend that Traffic Commissioners hold a public inquiry into whether a non-compliant British operator or driver should have regulatory action taken against their operating or professional driving licence. Traffic Commissioners held 1,202 regulatory public inquiries regarding commercial vehicle operators in 2008-09.

**2.19** The Agency has faced particular difficulties in sanctioning non-British drivers and operators but has new powers under the Road Safety Act 2006, which enable it to:

- **issue fixed penalties** to British and non-British drivers for a range of defects and offences, graduated between £30 and £200 per offence. The Department has estimated that the new powers will result in wider annual benefits of £20 million by shifting the balance of sanctions from prosecutions to fixed penalties. The Agency expects to reduce the number of prosecutions that it undertakes by 80 per cent. By October 2009, examiners had issued around 17,000 fixed penalty notices, of which around six per cent of drivers had refused to pay the fixed penalty (in line with Agency estimates) and 45 drivers had contested the notice and asked to go to court. The Agency told us it had collected around £2 million from fixed penalties by 31 October 2009. Fixed penalties for non-UK drivers are not yet in force in Scotland, and there is as yet no agreed date of implementation; and

- **immobilise vehicles** to help enforce prohibitions issued against vehicles that are un-roadworthy or overloaded; drivers that are over their hours limits; or drivers who refuse to pay financial penalties. Immobilisation powers apply to both British and non-British vehicles.

## Cost effectiveness of enforcement activities

**2.20** The Agency collects high level data on the costs of its enforcement activities. It does not currently have sufficient financial data in a useable format to calculate the costs of specific individual enforcement activities, such as the differential costs of roadside checks and operator visits. It, therefore, cannot compare how activity costs change over time or assess the cost-effectiveness of its different enforcement activities. The Agency has compiled the relevant cost information when making changes to its enforcement work, such as when introducing the High Risk Traffic Initiative. As it does not assess all these enforcement costs, the Agency risks measuring only the effectiveness of its activities and not the wider value for money implications. Using data from the High Risk Traffic Initiative, which relates only to roadside checks, we estimated that the average cost of an HGV roadside check in 2008-09 was around £130.[10]

**2.21** The Agency spent 91 per cent of enforcement expenditure on HGV enforcement and nine per cent on PSV enforcement in 2008-09. The proportion spent on PSV enforcement has decreased over time, from a peak of 18 per cent in 2003-04 (**Figure 13**). Overall, the Agency spent around 60 per cent of enforcement expenditure on traffic enforcement in 2008-09 and around 40 per cent on roadworthiness. These proportions reflect the Agency's increasing emphasis on enforcing traffic regulations on HGVs, resulting in part from the increased requirement for drivers' hours checks and which are known to have the greatest impact on road safety.

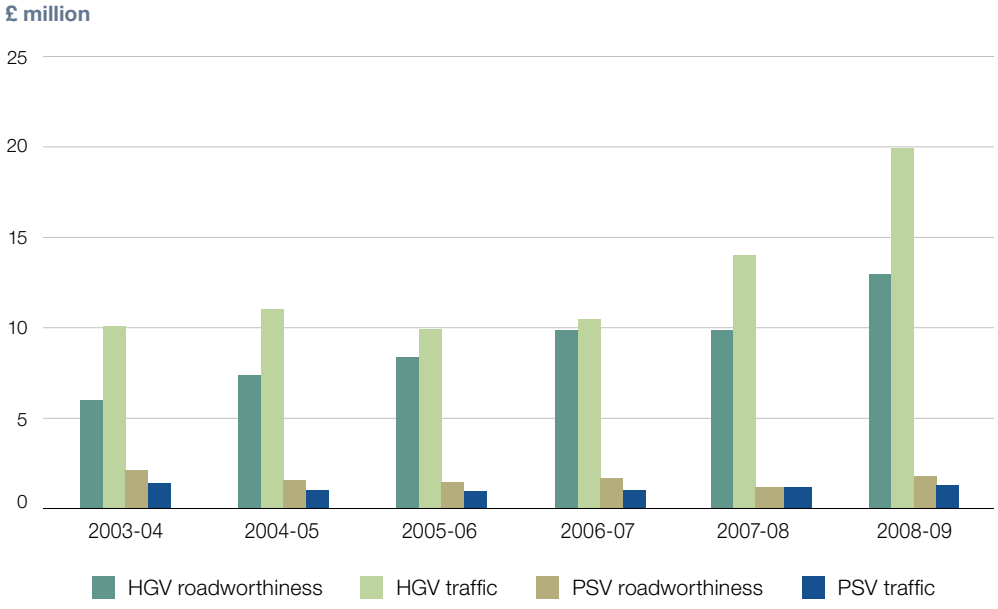
**2.22** We undertook benefit cost calculations on the Agency's expenditure on enforcement of HGV regulations (Appendix 2). We estimated the proportion of serious mechanical and drivers' hours prohibitions that might go on to be involved in an accident and used this to estimate the number of accidents prevented by the Agency's enforcement work. We then estimated the benefit of preventing delays resulting from the accidents in 2008 and the benefit of preventing the resulting casualties to compare the benefit to society of the accidents averted with the Agency's expenditure.

10 Calculation based on expenditure on and performance of High Risk Traffic Initiative in 2008-09, using direct costs only and excluding start-up costs (recruitment and training) and overheads.

**2.23** Based solely on regulating British HGVs on major roads, the benefit of the Agency's enforcement activities are likely to outweigh its expenditure. This is a conservative estimate of the benefit and does not take into account, for example, non-British HGVs or the deterrent effect. We performed sensitivity analyses by varying our assumptions about the numbers of accidents prevented and the benefits from accidents prevented by up to +/- 50 per cent and found that the benefits exceeded the cost of enforcement in 44 per cent of the scenarios we used. Given the nature of the underlying assumptions that we have used, however, our benefit cost estimate should be regarded as indicative only and it does not provide a benchmark with similar organisations. It cannot be used to determine whether the Agency is providing good value for money from its commercial vehicle enforcement.

## Figure 13

Expenditure on HGV and PSV enforcement by roadworthiness and traffic scheme




*Source: National Audit Office analysis of Agency's management information*

**NOTE**
All figures are at 2008-09 prices.

# Appendix One

## Methodology

The main elements of our fieldwork, which took place between February and May 2009, were:

| Selected method | Purpose |
|---|---|
| **1** Area visits | |
| Visits to seven Area Offices and three Regional Intelligence Units, chosen according to performance characteristics and geographical location. | To gather primary data about the planning, management and outcomes of enforcement and the use made of intelligence in this work.<br>To gather evidence of the practical conduct of compliance activities through observing around 60 roadside inspections and seven operator premises visits. |
| **2** Interviews | |
| Semi-structured interviews with 19 individuals within the Department and the Vehicle and Operator Services Agency. | To gather evidence about the setting of enforcement strategies and targets; resourcing of compliance activities and performance reporting; the conduct of joint inspections and the effectiveness of data sharing with other agencies; and the application of available sanctions. |
| **3** Consultation | |
| Written consultation with senior officials in 28 organisations including freight haulage and passenger transport industries, haulage companies, port authorities and the police who work with, or have an interest in, the Agency's enforcement of commercial vehicles. | To establish their perceptions about the efficiency and effectiveness of the Agency's enforcement activity and to identify scope for improvements. |
| **4** Review of risk scoring system and road safety data | |
| Review of the principles of the Agency's risk rating system. Analysis of a two-year sample of risk scores to assess the impact of changes in score.<br>Analysis of the Department's road safety data, the Agency's accident database and roadside encounter database. Comparison of risk score to road safety risk. | To assess the extent to which the Agency's risk-based targeting system reflects the actual risks to road safety posed by commercial vehicles. |

| Selected method | Purpose |
|---|---|
| **5** Financial data analysis | |
| Analysis of the Agency's resource accounts, scheme accounts, Areas' expenditure summaries, Regional Intelligence Units' expenditure summaries, and High Risk Traffic Initiative year-end report. See Appendix 2 for the benefit cost calculation. | To identify how the Agency's enforcement activity is funded and to establish the relative cost effectiveness of different elements of a range of individual activities. |
| **6** Performance data analysis | |
| Analysis of the Agency's performance data, annual fleet compliance check data, prosecutions data, and risk score data. | To gather evidence about the numbers and proportions of Agency examinations and sanctions to compare performance over time and between Areas. |
| **7** Document review | |
| Review of documents from the Department, the Agency, other bodies such as the UK Border Agency, and research reports. | To assess the administrative and strategic context of enforcement. |

# Appendix Two

## Benefit cost calculation

**1** We wanted to establish whether the benefits from the Agency's enforcement activities met its costs. For reasons of simplicity, data limitations and to reflect the relative risks posed by HGVs and PSVs, we narrowed our assessment to estimate the costs and benefits of regulating British HGVs on major roads (motorways and A roads). We:

- estimated the proportion of vehicles with defects that the Agency checks that go on to cause accidents;
- used this to estimate the number of accidents prevented by VOSA's inspections;
- estimated the average benefit of preventing an accident involving an HGV; and
- applied this to the number of accidents prevented by VOSA's activities to estimate their value to the economy.

### Proportion of dangerous vehicles that cause accidents

**2** Five thousand five hundred and seventy one accidents[11] involving UK registered HGVs in 2008 on major roads were caused by HGVs. We estimated that 14 per cent of actual accidents involving UK HGVs result from defects which the Agency checks for in its enforcement activities. This implies that 780 of the 5,571 accidents caused by UK registered HGVs in 2008 on major roads were 'blameworthy' HGV accidents that resulted from defects which the Agency checks for.

| A: Number of accidents in Great Britain involving UK registered HGVs in 2008[12] | B: Percentage of accidents involving HGVs resulting from defects which the Agency checks for | C: Number of accidents in 2008 in which HGV driver was to blame resulting from defects which the Agency checks for (A x B) |
|---|---|---|
| 5,571 | 14% | 780 |

11 Road Casualties Great Britain: 2008. 5,571 may include some accidents where it was not known whether an HGV was non-British or not.

12 We use 2008 data throughout this calculation for internal consistency.

**3** Using a range of data sources[13], we estimated that, from an overall population of approximately 436,000 UK registered HGVs, the Agency identified 6,114 vehicles with serious mechanical and drivers' hours defects[14] through roadside checks. We also calculated that 16,833 UK registered HGVs have serious mechanical and drivers' hours defects that the Agency does not detect.

**4** Assuming that the estimated 780 blameworthy accidents resulting from observable defects that occurred in 2008 all came from the population of 16,833 vehicles operating with serious mechanical and drivers' hours defects, this indicates that some 4.6 per cent of defective HGVs go on to cause an accident. Applying this percentage to the 6,114 HGVs that the Agency identified as having serious mechanical and drivers' hours defects means that the roadside checks prevented 283 accidents in 2008.

| D: Estimated number of vehicles with unidentified defects in 2008 | E: Number of vehicles with defects identified by the Agency in 2007 | We have assumed that the 780 accidents in which HGV drivers were to blame all derived from the 16,833 vehicles with unidentified defects | F: Percentage of defective HGVs that go on to cause accidents (C ÷ D) | G: Number of accidents prevented by the Agency in 2007 (E x F) |
|---|---|---|---|---|
| 16,833 | 6,114 | | 4.6% | 283 |

## The benefits to society of preventing accidents involving HGVs

**5** We assumed that the main components of the benefits to society of preventing HGV accidents are lower numbers of casualties and reduced congestion costs when traffic flow is affected after an accident. The 5,571 accidents on major roads in 2008 involving UK registered HGVs resulted in 273 fatalities, 918 serious injuries and 6,795[15] slight injuries. Using assumptions contained in the Department's Transport Analysis Guidance[16], we estimated the total benefit of preventing casualties resulting from accidents caused by UK registered HGVs on the major roads in 2008 to be £730.1 million.

13 VOSA Effectiveness Report, 2008; NAO analysis of VOSA balanced scorecard; Road Casualties Great Britain: 2008; Road Statistics 2008: Traffic, Speeds and Congestion.
14 Representing the number of vehicles considered to pose an immediate road safety risk.
15 Reported personal injury road accidents, on motorways and A roads, involving UK registered HGVs: GB, 2008.
16 Department for Transport, Transport Analysis Guidance, April 2009. The benefits attributed to each category of casualty include estimates at 2007 values of lost output, human costs and medical and ambulance costs. These values have been uprated to 2008 values according to the method described in the same guidance. These assumptions have not been audited by the National Audit Office.

| A: Number of accidents resulting in casualties | Fatalities | Serious injuries | Slight injuries |
|---|---|---|---|
| 5,571 | 273 | 918 | 6,795 |
| Benefit of each casualty prevented: | £1,674,435 | £189,295 | £14,594 |
| Benefit of all casualties prevented: | £457.1m | £173.8m | £99.2m |
| H: Total benefit | £730.1m | | |

**6** Using a range of data sources[17] we estimated that accidents caused by UK registered HGVs result in 4.4 million vehicle delay hours per year on major roads. Using the 2008 value of £15.80 per vehicle delay hour, we calculated the total benefit of preventing congestion as a result of accidents caused by UK registered HGVs on major roads as £69.5 million.

| Benefit of prevented delays due to congestion per hour | Number of hours of delay caused by HGVs on major roads in 2008 | Total benefit of prevented delays (I) |
|---|---|---|
| £15.80 | 4.4m | £69.5m |

**7** Combining the benefits of casualties prevented and congestion gave a total benefit of preventing accidents caused by UK registered HGVs on major roads of (£730.1 million + £69.5 million) = £799.6 million. This total benefit results from a total of 5,571 accidents. Therefore, the average benefit of preventing an accident caused by a UK registered HGV on major roads is estimated to be (£799.6 million / 5,571) = £143,529.

17 VOSA HRTI Business Case v1.0, VOSA DART Business Case v1.0.

## Assumptions

**8** We made some assumptions:

- assessed only the benefits from accidents on major roads, and have ignored local roads;
- considered only the effects of accidents involving UK registered HGVs, and ignored accidents involving non-UK registered HGVs as well as accidents involving all light goods vehicles (LGVs) and PSVs;
- ignored benefits accruing from prohibitions placed on non-UK registered HGVs;
- ignored any additional benefits from preventing accidents such as damage to vehicles and property, and police and administrative costs not related to individual casualties;
- excluded any prohibitions arising from operator visits;
- ignored the disbenefits caused by delaying compliant vehicles at roadside checks;
- assumed that a vehicle receiving a serious mechanical or drivers' hours prohibition remains compliant for a year;
- assumed that all HGV blameworthy accidents result from vehicles with serious mechanical or drivers' hours defects, whereas a proportion will be caused by less serious defects; and
- excluded the deterrent value of the Agency's activities.

## Benefit cost calculation

**9** If serious mechanical and drivers' hours prohibitions resulting from the Agency's roadside checks prevented 283 accidents and the average value of these was £143,529, then the roadside checks would have delivered £40.7 million of benefits. This compares to the Agency's expenditure of £32.9 million on HGV enforcement in 2008-09.

| J: Total benefit of prevented accidents (H + I) | A: Number of accidents resulting in casualties | K: Average benefit of preventing an accident (J ÷ A) | L: Number of accidents prevented by the Agency in 2008 | M: Value of benefits delivered by Agency by preventing accidents in 2008 (K x L) |
|---|---|---|---|---|
| £799.6m | 5,571 | £143,529 | 283 | £40.7m |

## Sensitivity analysis

**10** We performed sensitivity analysis by varying the number of accidents prevented by the Agency and the average benefit of a prevented accident by up to +/- 50 per cent and then looking at the effect different combinations of these changes had on the benefits delivered by roadside checks. This suggested that roadside checks could deliver a minimum of £10 million and a maximum of £91 million benefits. The benefit exceeded the Agency's expenditure of £32.9 million on HGV enforcement in 2008-09 in 44 per cent of the combinations analysed.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